REFERENCE PRODUCT

Commercial reference: 50FC 170 R454b
Product family: 50FC 100-280 R454b

Technical description:
The 50FC packaged rooftop range consists of autonomous compact air-air units of horizontal design, rooftop type. 50FC series, models HP 100 to 280: for reversible heat pump operation. The range of available capacities in the series allows for the air conditioning of medium and large surface areas which are common in shopping malls, food retail, logistics and many other commercial and industrial applications. 50FC units are designed for optimized part-load management in achieving the highest levels of seasonal efficiency, exceeding the limits set by regulation. With its monoblock lightweight construction, the units feature a self-supporting frame, designed to ease the installation and maintenance works. The units integrate the latest technological innovations.

Category: Rooftop, active product

FUNCTIONAL UNIT
"To produce 1 kW of heating or 1 kW of cooling according to the appropriate usage scenario defined in the EN 14825 standard and during the 22 year reference lifetime of the product."

INFORMATION ON THE COMPANY

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Eco-design engineer
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COMPONENT MATERIALS

MASS OF THE REFERENCE PRODUCT

Total weight: 1781.5 kg
including the product, its packaging and the additional components supplied with the reference product

| Metals | 1098.17 | 61.6% |
|------------------------------|
| Metals | 318.85 | 17.9% |
| Metals | 263.52 | 14.8% |
| Plastics | 36.19 | 2.1% |
| Plastics | 13.47 | 0.8% |
| Miscellaneous | 4.29 | 0.2% |
| Metlals | 3.13 | 0.2% |
| Plastics | 2.60 | 0.2% |
| Metals | 1.84 | 0.1% |
| Plastics | 1.04 | < 0.1% |
| Metals | 0.91 | < 0.1% |

Total | 1781.5 | 100.0%

The environmental impacts are calculated using a Life Cycle Analysis of the product in accordance with ISO standards 14040 and 14044. All the stages of the manufacture, distribution, installation (packaging end of life), maintenance and end of life of the product are included in this study.

MANUFACTURING:
The 50FC range of products is manufactured in Spain at a Carrier production plant, which implements an ISO 14001-certified environmental management system. The manufacturing site has also obtained ISO 9001 and OHSAS 18001 certification.

Hazardous substances:
The ranges of products from the Carrier Group comply with the requirements of the "RoHS" Directive (EU) 2015/863 of 31 March 2015 and 2011/65/EU of 8 June 2011 and the "REACH" regulation 1907/2006 of 18 December 2006. The Carrier Group’s suppliers are obliged to inform them of any change in the composition of the components.

INSTALLATION:

DISTRIBUTION:
The environmental impacts are calculated using a Life Cycle Analysis of the product in accordance with ISO standards 14040 and 14044. All the stages of the manufacture, distribution, installation (packaging end of life), maintenance and end of life of the product are included in this study.

Recyclability rate: 90%

| Plastics | Others | Metals | Miscellaneous |

ADDITIONAL ENVIRONMENTAL INFORMATION

USE:
There are twelve filters of type G4 (pre-filter); six fan and four compressor.

END OF LIFE:

Recyclability potential

- Weight ratio of reusable components
- Weight ratio of Recyclable materials
- Weight ratio of Energy recovery
- Residual wastes

- Recyclability potential: 90%
Environmental Impacts

Life Cycle Analysis Methodology

The Life Cycle Analysis used as the basis for this Product Environmental Profile (PEP) was drawn up in line with the criteria set by PCR–ed3-EN-2015 04 02 for the PEP ecopassport® program.

Reference service life: 22 years

The environmental impacts are calculated using a Life Cycle Analysis of the product in accordance with ISO standards 14040 and 14044. All the stages of the manufacture, distribution, installation (packaging end of life), maintenance and end of life of the product are included in this study.

Manufacturing stage:

Energy model:

Electricity grid mix; AC; consumption mix, at consumer; 230V; ES

During the manufacturing phase, a procurement scenario is taken into account; information on the provenance of the components and the mode of transport has been gathered from the Carrier Purchasing department. The production of the refrigerant fluid R454b is also taken into account.

Installation stage:

Energy model:

ELCD - Lorry transport; Small lorry, 3.3 t capacity; RER

If the product is supplied packed, the impact of the end of life for this packaging is taken into account in this phase. We therefore take into consideration an average journey of 200 km in a van, the water consumption, the refrigerant consumption and the lubricating oil consumption.

End of life stage:

Energy model:

Waste pretreatment of electrical and electronic equipment (WEEE); including dismantling and material separation;
- technology mix, at waste pretreatment plant; GLO ;
- Waste recycling; in compliance with stock method; World, GLO ;
- Waste incineration of WEEE; after dismantling; GLO ; Landfill of WEEE; after dismantling; GLO

The product end of life follows a WEEE disposal process:
- stage 1: the equipment is collected with a 200 km van journey.
- stage 2: decontamination, crushing then sorting of the various materials.
- stage 3: specific processing of the electronic components, electrical heaters, cables, bulbs and screens.
- stage 4: recycling of other materials (this flow is outside of the system and its benefit is not recorded), with a 100 km van journey.
- stage 5: incineration without energy recovery of components with no re-use value, with a 100 km journey.
- stage 6: offloading of the rest of the material, with a 100 km journey.

Distribution stage:

Energy model:

ELCD - Lorry Transport; articulated lorry, 27 t capacity; RER ; ELCD - Transoceanic transport, Container ship, 27 500 t capacity; RER

The distribution scenario has been defined using data recommended by the PEP Ecopassport® program, adjusted to the average sales distance for our customers. The environmental impact is then calculated pro rata using the total weight of the products transported, to ensure trucks carry an optimised load when outbound and are 25% full on their return. The scenario retained is distribution of the range to the following destinations: 17.9% France; 55.8% Europe and 26.3% rest of world.

Usage stage:

Energy model:

For France: the model chosen is: "Electricity mix; AC; consumption mix, at consumer; 230 V; FR"
For Europe: the model chosen is: "Electricity Mix; AC; consumption mix, at consumer; < 1 kV; EU-27"
For the rest of the world: as there is no electricity model for modelling the rest of the world, we have used the European model. "Electricity Mix; AC; consumption mix, at consumer; < 1 kV; EU-27"

The use scenario is 600 operating hours per year in cooling, with a SEER of 4.72 and a cooling capacity of 162.9 kW, and 1400 operating hours per year in heating, with a SCOP of 3.45 and a heating capacity of 166.2 kW. We obtain for C [kWh]:

Consumption = 1 939 324 kWh
Consumption in France: 347 721 kWh
Consumption in Europe: 1 081 755 kWh
Consumption in rest of world: 509 848 kWh

An annual check of the device is carried out 21 times throughout the reference lifetime (the first year the check does not take place).

The refrigeration circuit is refill to compensate the fluid leakage, oil changes are also taken into account. The fluid emission level is 2 % of total load per year.

The filters are changed once per year.
FMA are changed once during the life cycle
End of life of the FMA follows a WEEE disposal process.
The PEP was drawn up under the assumption 1 kW of heating or cooling power being supplied. The real impact of the stages of the life cycle of a product installed in an actual situation is calculated by the user of the PEP by multiplying the impact concerned by the total heating and cooling capacity in kW.

* represents less than 0.01% of the total life cycle of the reference flow
As part of the life cycle analysis of buildings, the environmental impacts of the use stage must be declared according to modules B1 to B7 (B1: use; B2: maintenance; B3: repair; B4: replacement; B5: rehabilitation; B6: energy use; B7: water use).
### Per device corresponding to the reference product

#### MANDATORY INDICATORS

<table>
<thead>
<tr>
<th>Impact indicators</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Distribution</th>
<th>Installation</th>
<th>Use (B1-B7)</th>
<th>End of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming</td>
<td>kg CO₂ eq</td>
<td>8.75E+05</td>
<td>5.86E+04</td>
<td>2.66E+02</td>
<td>0*</td>
<td>0*</td>
<td>8.36E+05</td>
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<tr>
<td>Depletion of the ozone layer</td>
<td>kg CFC-11 eq</td>
<td>1.89E-01</td>
<td>5.43E-02</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>1.26E-01</td>
</tr>
<tr>
<td>Acidification of soil and water</td>
<td>kg SO₂ eq</td>
<td>3.47E+03</td>
<td>5.48E+01</td>
<td>3.67E+00</td>
<td>0*</td>
<td>0*</td>
<td>3.41E+03</td>
</tr>
<tr>
<td>Eutrophication of water</td>
<td>kg (P04)³¯eq</td>
<td>2.23E+02</td>
<td>1.12E+01</td>
<td>4.57E-01</td>
<td>0*</td>
<td>0*</td>
<td>2.11E+02</td>
</tr>
<tr>
<td>Photochemical ozone creation</td>
<td>kg C2H4 eq</td>
<td>1.95E+02</td>
<td>5.76E+00</td>
<td>1.98E-01</td>
<td>0*</td>
<td>0*</td>
<td>1.89E+02</td>
</tr>
<tr>
<td>Depletion of abiotic resources - elements</td>
<td>kg Si eq</td>
<td>1.10E+00</td>
<td>7.17E-01</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>3.84E-01</td>
</tr>
<tr>
<td>Inventory flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life cycle total use of primary energy</td>
<td>MJ</td>
<td>1.57E+07</td>
<td>4.40E+05</td>
<td>3.62E+03</td>
<td>0*</td>
<td>0*</td>
<td>1.92E+07</td>
</tr>
<tr>
<td>Net use of fresh water</td>
<td>m³</td>
<td>3.72E+06</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>3.72E+06</td>
</tr>
</tbody>
</table>

* represents less than 0.01% of the total life cycle of the reference flow.

#### OPTIONAL INDICATORS

<table>
<thead>
<tr>
<th>Impact indicators</th>
<th>Unit</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Distribution</th>
<th>Installation</th>
<th>Use (B1-B7)</th>
<th>End of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depletion of abiotic resources - fossil fuels</td>
<td>MJ</td>
<td>9.49E+06</td>
<td>1.11E+05</td>
<td>3.62E+03</td>
<td>0*</td>
<td>0*</td>
<td>9.34E+06</td>
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<tr>
<td>Water pollution</td>
<td>m³</td>
<td>3.51E+07</td>
<td>8.97E+05</td>
<td>4.22E+04</td>
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<td>0*</td>
<td>3.42E+07</td>
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<tr>
<td>Air pollution</td>
<td>m³</td>
<td>4.12E+07</td>
<td>4.74E+06</td>
<td>2.09E+04</td>
<td>0*</td>
<td>0*</td>
<td>3.64E+07</td>
</tr>
<tr>
<td>Inventory flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of renewable primary energy, excluding renewable primary energy resources used as raw materials</td>
<td>MJ</td>
<td>2.24E+06</td>
<td>6.90E+03</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>2.23E+06</td>
</tr>
<tr>
<td>Use of renewable primary energy resources as raw materials</td>
<td>MJ</td>
<td>8.49E-01</td>
<td>6.90E-01</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>2.23E-01</td>
</tr>
<tr>
<td>Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)</td>
<td>MJ</td>
<td>2.24E+06</td>
<td>6.90E+03</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>2.23E+06</td>
</tr>
<tr>
<td>Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials</td>
<td>MJ</td>
<td>1.74E+07</td>
<td>4.25E+05</td>
<td>3.62E+03</td>
<td>0*</td>
<td>0*</td>
<td>1.70E+07</td>
</tr>
<tr>
<td>Use of non-renewable primary energy resources as raw materials</td>
<td>MJ</td>
<td>2.44E+04</td>
<td>7.78E+03</td>
<td>0*</td>
<td>0*</td>
<td>5.56E+02</td>
<td>1.61E+04</td>
</tr>
<tr>
<td>Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)</td>
<td>MJ</td>
<td>1.75E+07</td>
<td>4.33E+05</td>
<td>3.62E+03</td>
<td>0*</td>
<td>0*</td>
<td>1.70E+07</td>
</tr>
<tr>
<td>Use of secondary materials</td>
<td>kg</td>
<td>1.12E+03</td>
<td>7.63E+02</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>4.12E+02</td>
</tr>
<tr>
<td>Use of renewable secondary fuels</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
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<tr>
<td>Use of non-renewable secondary fuels</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Hazardous waste disposed</td>
<td>kg</td>
<td>8.79E+04</td>
<td>6.05E+04</td>
<td>0*</td>
<td>0*</td>
<td>0*</td>
<td>2.46E+04</td>
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<tr>
<td>Non-hazardous waste disposed</td>
<td>kg</td>
<td>3.05E+06</td>
<td>1.09E+04</td>
<td>0*</td>
<td>0*</td>
<td>2.96E+08</td>
<td>0*</td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>kg</td>
<td>3.05E+03</td>
<td>8.76E+00</td>
<td>0*</td>
<td>0*</td>
<td>3.08E+03</td>
<td>0*</td>
</tr>
<tr>
<td>Components for reuse</td>
<td>kg</td>
<td>2.22E+03</td>
<td>0*</td>
<td>0*</td>
<td>2.15E+00</td>
<td>5.90E+02</td>
<td>1.61E+03</td>
</tr>
<tr>
<td>Materials for energy recovery</td>
<td>kg</td>
<td>1.47E+02</td>
<td>0*</td>
<td>0*</td>
<td>3.26E+00</td>
<td>0.00E+00</td>
<td>1.40E+02</td>
</tr>
<tr>
<td>Exported energy</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
</tbody>
</table>

The Life Cycle Analysis was conducted using EIME software: 5.9.3

With its database version: CODDE-2020-12

Only the energy mix changes based on the place of use: 17.9% France, 55.8% Europe and 26.3% rest of world.

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Only the energy mix changes based on the place of use: 17.9% France, 55.8% Europe and 26.3% rest of world.

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**Impact indicators**

- Depletion of abiotic resources
- Water pollution
- Air pollution
- Inventory flow
- Use of secondary materials
- Use of renewable secondary fuels
- Use of non-renewable secondary fuels
- Hazardous waste disposed
- Non-hazardous waste disposed
- Radioactive waste disposed
- Components for reuse
- Materials for energy recovery
- Exported energy

**PER DEVICES**

- Global warming
- Depletion of the ozone layer
- Acidification of soil and water
- Eutrophication of water
- Photochemical ozone creation
- Depletion of abiotic resources - elements
- End of life
- Net use of fresh water

**Involved flows**

- Use of renewable primary energy, excluding renewable primary energy resources used as raw materials
- Use of renewable primary energy resources as raw materials
- Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials
- Use of non-renewable primary energy resources as raw materials
- Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- Use of secondary materials
- Use of renewable secondary fuels
- Use of non-renewable secondary fuels
- Hazardous waste disposed
- Non-hazardous waste disposed
- Radioactive waste disposed
- Components for reuse
- Materials for energy recovery
- Exported energy
### Environmental Impacts of Modules B1 to B7

#### Per device corresponding to the reference product

<table>
<thead>
<tr>
<th>Impact Indicators</th>
<th>Unit</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming</td>
<td>kg CO₂ eq</td>
<td>1.43E+04</td>
<td>4.29E+03</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>8.18E+05</td>
<td>0.00E+00</td>
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<tr>
<td>Deposition of the ozone layer</td>
<td>kg CH₄ eq</td>
<td>2.10E-02</td>
<td>1.81E-04</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>1.55E-01</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Acidification of soil and water</td>
<td>kg SO₂ eq</td>
<td>1.16E+00</td>
<td>1.14E+01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>3.39E+03</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Eutrophication of water</td>
<td>kg (PO₄)³⁻ eq</td>
<td>4.31E-01</td>
<td>1.45E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>2.09E+02</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Photochemical ozone creation</td>
<td>kg C₂H₄ eq</td>
<td>2.41E-01</td>
<td>1.41E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>1.87E+02</td>
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<tr>
<td>Deposition of abiotic resources - elements</td>
<td>kg Sb eq</td>
<td>1.62E-03</td>
<td>2.96E-01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>8.62E-02</td>
<td>0.00E+00</td>
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<tr>
<td>Inventory flow</td>
<td>MJ</td>
<td>1.45E+04</td>
<td>2.16E+05</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>1.90E+07</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Net use of fresh water</td>
<td>m³</td>
<td>1.95E+01</td>
<td>1.22E+02</td>
<td>0.00E+00</td>
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<td>0.00E+00</td>
<td>3.72E+06</td>
<td>0.00E+00</td>
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<tr>
<td>Per device corresponding to the reference product</td>
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</table>

#### Optional Indicators

<table>
<thead>
<tr>
<th>Impact Indicators</th>
<th>Unit</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposition of abiotic resources - fossil fuels</td>
<td>MJ</td>
<td>1.55E+04</td>
<td>4.17E+04</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>9.29E+06</td>
<td>0.00E+00</td>
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<tr>
<td>Water pollution</td>
<td>m³</td>
<td>4.05E+02</td>
<td>7.32E+04</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>3.41E+07</td>
<td>0.00E+00</td>
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<tr>
<td>Air pollution</td>
<td>m³</td>
<td>7.07E+04</td>
<td>1.51E+06</td>
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<td>0.00E+00</td>
<td>3.48E+07</td>
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<td>Use of renewable primary energy, excluding renewable primary energy resources used as raw materials</td>
<td>MJ</td>
<td>2.53E-03</td>
<td>1.33E+00</td>
<td>0.00E+00</td>
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<td>2.23E+06</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)</td>
<td>MJ</td>
<td>1.32E+03</td>
<td>2.04E+09</td>
<td>0.00E+00</td>
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<td>0.00E+00</td>
<td>1.68E+07</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials</td>
<td>MJ</td>
<td>1.17E+03</td>
<td>4.16E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>1.68E+07</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)</td>
<td>MJ</td>
<td>1.45E+04</td>
<td>2.08E+05</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>1.68E+07</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Use of secondary materials</td>
<td>kg</td>
<td>0.00E+00</td>
<td>4.12E+03</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Use of non-renewable secondary fuels</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Use of non-renewable secondary fuel</td>
<td>MJ</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Hazardous waste disposed</td>
<td>kg</td>
<td>5.92E+00</td>
<td>2.45E+04</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>4.76E+02</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Non-hazardous waste disposed</td>
<td>kg</td>
<td>5.97E+01</td>
<td>8.97E+02</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>2.96E+06</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>kg</td>
<td>5.97E+01</td>
<td>7.25E+01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>3.06E+03</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Materials for recycling</td>
<td>kg</td>
<td>1.39E+02</td>
<td>4.51E+02</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>5.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Components for reuse</td>
<td>kg</td>
<td>9.56E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
</tr>
<tr>
<td>Materials for energy recovery</td>
<td>kg</td>
<td>1.39E+02</td>
<td>9.55E+01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>5.00E+00</td>
<td>0.00E+00</td>
</tr>
</tbody>
</table>

### Note

As part of the life cycle analysis of buildings, the environmental impacts of the use stage must be declared according to modules B1 to B7 (B1: use; B2: maintenance; B3: repair; B4: replacement; B5: rehabilitation; B6: energy use; B7: water use).
Extrapolation coefficients are given for the environmental impact of the functional unit, i.e. the emission of 1 kW of heating or cooling power. For each stage of the life cycle, the environmental impacts of the product concerned are calculated by multiplying the impacts of the declaration corresponding to the reference product by the extrapolation coefficient. The “Total” column should be calculated by adding the environmental impacts of each stage of the life cycle.
The set of indicators used in this study is: Indicators for PEP ecopassport® - PCR 3 - 2015

The mandatory indicators are:

GWP (Global Warming Potential):

This indicator is used to calculate the global warming potential caused by emissions in the air contributing to the greenhouse effect. It is expressed in kg CO2 eq. The calculation methodology comes from the IPCC (International Panel of Climate Change, US, 2007), and we used a 100-year horizon. (IPCC 2007 method via CML, GWP 100).

ODP (Ozone Depletion):

This indicator is used to calculate the contribution of atmospheric emissions to the depletion of the stratospheric ozone layer. It is expressed in kg CFC-11 eq. The calculation methodology comes from the WMO (World Meteorological Organization, CML 2012).

A (Acidification for soil and water):

This indicator is used to calculate the acidification of the soil and water. It is expressed in kg SO2-eq. The calculation methodology was developed by Huijbregts (CML, 2012).

EP (Eutrophication):

This indicator is used to calculate the eutrophication (enrichment with nutrients) of oceans and lakes by effluent. It is expressed in kg PO43-eq. Eutrophication of water courses results from excessive enrichment with nutrient molecules (organic molecules) in the environment. Phosphorus, nitrogen, carbon and potassium allow the development of algae and aquatic species that can lead to a reduction in the oxygen level and an unbalanced bioecosystem. The calculation methodology was developed by Heijungs et al. 1992 (CML, 2012).

POCP (Photochemical Oxidation):

This indicator, expressed in kg C2H4-eq, is used to calculate the amount of ozone produced in the troposphere due to the action of solar radiation on oxidising gas emissions (known as summer smog; see summer peak ozone levels). The calculation methodology was developed by Jenkin & Hayman - Derwent et al. (CML, 2012).

ADPe (Depletion of Abiotic Resources - Elements):

This indicator is used to calculate the depletion of non-renewable mineral resources by taking into account the extent of natural reserves. It is expressed in equivalents of kilograms of antimony (kg Sb-eq). The calculation methodology was developed by Oers et al. (CML, 2012).

EP (Total use of primary energy):

This indicator is used to calculate the primary energy consumption during the life cycle of the product. It is expressed in MJ.

NUFW (Net use of fresh water):

This indicator represents the net consumption of fresh water used for the system. It is expressed in m3. In EIME, fresh water is broken down into river, lake, underground and surface water, as well as water of unspecified origin. Water extracted and discharged into these environments with the same quality level is not covered by this indicator.

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The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)

PEP are compliant with XP C08-100-1 :2016
The elements of the present PEP cannot be compared with elements from another program.
Document in compliance with ISO 14025 : 2006 « Environmental labels and declarations. Type III environmental declarations »